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INTERNATIONAL RICE COMMISSION

Report of the First Session
Bangkok, Thailand, 7-16 March 1949



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Bangkok, Thailand.
March 1949

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FOREWORD

THE Inaugural Session of the International Rice Commission marks a significant step in the efforts of governments to bring about the systematic development and improvement of the rice economy of the world. The Commission is charged with the responsibility of formulating a world rice policy based upon human needs and of building and promoting a program of rice production, distribution, conservation and consumption which utilizes fully the advanced knowledge of research and technology and seeks to improve the economic status and welfare of rice producers and consumers alike.

Several other commodity commissions and councils have been in existence for some years, primarily concerned with various regulatory aspects of international trade. But the Rice Commission is the first international body which has the express function of dealing with the problems of raising production and improving the utilization of such an essential food. While the Commission is not concerned with problems of international allocations or trade, its program will complement the efforts of other agencies responsible in these fields.

Everyone familiar with the conditions under which rice is grown, marketed and consumed will appreciate the magnitude and complexity of our task ahead. They will agree also with the decision of the Commission that effective work on all phases of the rice problem cannot be carried on simultaneously. Rather, a start must be made on a few projects that are basic in character and that show promise of tangible results within a reasonable time. Some readers of this report may feel disappointed over the elementary nature of the Commission's program for the year ahead, but it should be remembered that fundamental improvements in agriculture and nutrition come very slowly, especially among people who lack the educational and other resources for taking advantage of the knowledge of science and technology. But a good start has been made during the first Session toward the pooling and exchange of essential information and technical assistance. The Commission has agreed on certain priorities of work and upon a procedure for carrying it forward. It likewise has reached decisions on a number of basic questions of rice terminology and statistical reporting—questions that must be decided in the beginning so that the Commission and its members may have common working tools.

The work of this meeting has prepared for greater advancement in the next. Agreement was reached on many jobs that can be done now and that I believe will be done. It will be noted that five member countries have undertaken to do certain specific work for the benefit of all others and, of course, for themselves. Surely this is a healthy sign, for it shows true co-operative spirit, which will I think act as an incentive for others to contribute their quota to the common pool in the future.

Outwardly farmers are pessimists they always grumble about the weather and the difficulties that beset their calling but, luckily for the world at large, they are really optimists at heart, for in spite of their difficulties they go on planting their crops and hoping that they will be blessed with good returns. Members of the Commission who did me the high honour of electing me as their first Chairman know that I am a farmer, and I may say that I have the feelings of a farmer in regard to the International Rice Commission. In spite of the tremendous work ahead, I am optimistic enough to believe that by working together we shall accomplish lasting results and make a worth-while contribution to the objectives of the FAO.



HSH Prince Suthiporn Kridakara
CHAIRMAN INTERNATIONAL RICE COMMISSION

CHAPTER I

INTRODUCTION

THE International Rice Commission was created after a series of inter-governmental meetings had revealed that unless some international body was given direct responsibility for concentrating on the rice problem, the position of rice producers and consumers would likely become progressively worse. The various technical aspects of the problem had been analyzed carefully by the Rice Study Group at Trivandrum, India in July 1947, and questions of organization, function and program had been subsequently considered at the Baguio Rice Meeting in March 1948¹. In November 1948 the Fourth Session of the FAO Conference, following the recommendations of the Council of FAO approved the creation of the Commission and instructed the Director-General to proceed with its organization as soon as the requisite number of governments had accepted the Constitution formulated at Baguio². The pertinent decisions of the Fourth Session were as follows:

- “(a) The creation of an International Rice Commission in accordance with the provisions of the Draft Constitution for an International Rice Council drawn up at the Baguio Conference is approved
- “(b) The International Rice Commission shall make regular reports on its activities to the Council of FAO
- “(c) The Director-General shall, as expeditiously as feasible, proceed with the organization of this Commission and with the preparation of
 - 1 Rules of procedure providing for the necessary integration of the activities of the International Rice Commission with the policies and work of FAO,
 - 2 The necessary financial and administrative regulations”

Up to the time of the Inaugural Session seventeen nations, (viz Burma, Ceylon, Cuba, Dominican Republic, Ecuador, Egypt, France, India, Italy,

1 FAO Report of the Rice Study Group, Trivandrum India July 1947 and Report of the Rice Meeting, Baguio Philippines March 1948

2 “This Constitution shall enter into force as soon as notifications of acceptance have been received from the governments of at least ten countries members of the Food and Agriculture Organization representing in the aggregate not less than half of the world production of rice in the crop year 1947/48 as shown by official statistics” (Article IV, Constitution of International Rice Commission)

Mexico Netherlands Pakistan Paraguay Philippine Republic Thailand United Kingdom and the United States) had accepted the Constitution and thereby became full members of the Commission. Other rice-producing and consuming countries members of FAO may join at any time by sending their formal notices of acceptance to the Director General.

The agenda of the First Session covered a number of organizational and procedural matters: the review of the recommendations of the Trivandrum and Baguio meetings; the formulation of the Commission's Program of Activities for 1949-50; and consideration of ways of implementing the several phases of this program. (*See Appendix H*)

The officers elected for the first year were:

Chairman: H. S. H. Prince Sathuporn Kitiyakara, Thailand
Vice Chairmen: Dr. W. M. Clyde, United Kingdom
U. Khin, Burma

The Director-General of FAO, after informal consultation with the delegates designated Mr. William H. Cummings as Executive Secretary. The headquarters of the International Rice Commission will be at the Regional Office of FAO for Asia and the Far East, now located at Bangkok, Thailand.

The substantive work of the session was divided among three committees and one subcommittee, the results of which were reviewed in detail by the Commission as a whole. The committees were:

- A. Rice Production—K. Ramiah (India) Chairman
- B. Distribution and Utilization of Rice—L. B. Ellis (U. S. A.) Chairman
Subcommittee on Nutrition—J. Dorelle (France) Chairman
- C. Rice Statistics and Terminology—Felix Rosenfeld (France) Chairman

CHAPTER II

IMPROVEMENT OF RICE PRODUCTION

THE Commission, bearing in mind the discussions of production problems at Trivandrum and Baguio, considered the various steps that might be effectively taken to improve rice production. Recognising that only a relatively few problems could be dealt with during the first year and that in many cases information on existing practices and experimental results must be assembled before definite projects can be undertaken the Commission agreed to initiate the following actions during the coming year:

PROJECTS TO BE UNDERTAKEN BY THE COMMISSION IN 1949-50

1. Assemble descriptions of standard varieties (in commercial use) of rice now produced in the various countries using the form set out in *Appendix C*, these descriptions to be supplied by the countries to FAO for summarization and distribution to the member countries of the Commission. The material should be submitted to FAO headquarters by 1 August 1949¹.

2. Set up a working party on rice breeding to deal with the various aspects (yield, disease resistance, nutritional value, commercial value, response to fertilizers, etc.) of this subject including seed multiplication and distribution and recommend to member countries that they make the best breeding specialists available to serve on this working party or to assist in its activities. The working party will be constituted during the year and hold its first meeting just prior to the next annual meeting of the Commission.

3. Prepare a note on seed disinfection as a means of reducing seed-borne diseases: the material to be assembled by FAO from the countries that have conducted experiments, especially Burma, Indo-China, Indonesia, India, Japan, and Pakistan². The results will be summarized by FAO and distributed to member countries of the Commission.

¹ Countries indicated that they will wish to report the following approximate number of standard varieties in commercial use:

Ceylon	25	Other U K territories	10	Netherlands	26
Malaya	15	Paraguay	10	Japan	50
France	150	Burma	80	U S A	11
Italy	5	Philippines	16	India	200
Thailand	12			Australia	3

² Other countries may be included in this and other projects if they so desire.

4 Prepare a note on treatment of seeds with phosphate solution and other chemicals as a possible means of increasing production, this material to be assembled from countries having done experimental work (Burma, Ceylon India, Japan, and Pakistan), summarized by FAO, and distributed to the member countries of the Commission at the earliest convenience The material should be submitted to FAO by 1, August 1949.

5 Collect information available in the countries on mechanization of rice cultivation including its economics, this material to be assembled by FAO primarily from Argentina Australia, Brazil, British Guiana, Ceylon Italy, Malaya the Netherlands, Indonesia (Timor Island), the Philippines, Thailand and the United States of America The material should be submitted by 1, October 1949 to FAO, where it will be summarized and made available to member governments of the Commission

6 Request the Philippine and Thai Governments to undertake special experimental work on the economics of mechanizing rice culture and make the results available to the other member countries of the Commission It is suggested that these Governments request the help of an FAO adviser in planning and interpreting the results of such studies

7 Collect information on improved tools and implements for small and moderate sized holdings developed in various countries for use in rice culture and harvesting this information to be assembled from the countries by FAO and made available to members of the Commission perhaps as part of a publication FAO has in preparation on tools and small implements

8. Review the results of recent developments in control of stem borers, this material to be submitted by each country to FAO by 7 August 1949, after which an expert in one of the countries where most work has been done will be asked to prepare a critical summary for distribution to member countries

9 In order to obtain a general picture of the importance of various pests in different countries, assemble from countries brief statements concerning pests that are of economic importance, these statements to be furnished with the material requested under project (8) above.

10 Assemble information on the varieties available in each country that are resistant to stem borers, blast (*Pyricularia*), or other pests and diseases, this material to be supplied at the same time and on the same form as the information on standard varieties—(see (1) above)

11 Assemble material on general conditions of production in various countries including soil, climatic, geographical economic and social factors affecting rice yields in order that India and perhaps other countries may use

the material to determine how to raise their average production, this material to be obtained through a questionnaire (see *Appendix D*) to which countries should reply by 1, October 1949. Countries having more comprehensive published material are asked to supply it instead. Each country is to supply 20 copies, regardless of the form of the material. After receipt of the material, copies will be sent to each member country of the Commission and the information supplied will be summarized by workers in India and presented to the next annual meeting. Any governments wishing to prepare summaries are invited to send copies to India for incorporation in the preliminary summary to be submitted to the next annual meeting.

12 Collect information on fertilizer investigations and practices and on the use of crops for green manure, the material to be sent to FAO by 1, August 1949 for use in preparing a draft outline paper which will be considered at the next meeting of the Commission and which may then serve as a basis for setting up a working party to develop a co-ordinated program with relation to organic and inorganic fertilizer experimentation and practice.

13 Facilitate the exchange of information on crops that may be used for forage and the exchange of seeds for experimental purposes from both green manure and forage crops.

14 Assemble material on crop rotations that have proved successful in upland rice producing regions (France, India, Japan, the Netherlands, Pakistan, the Philippines, Palaguay) this material to be submitted to FAO by 1 August 1949 and to be summarized by a scientist in Indo-China.

15 Assemble material on the use of pumps driven by windmills and other types of power for use in lifting water for irrigation purposes (from Australia, Egypt, India, Italy, Japan, Malaya, Pakistan, the Philippines, Thailand, and the United States of America) this material to be supplied by 1 October 1949, and summarized by an expert of Thailand and then distributed to the member governments of the Commission.

16 Secure information (including details on types) on the availability of draft animals for export in the following countries: France, Palaguay, and possibly Thailand; make this information available to the following countries which are definitely interested in importing work stock: Burma, Ceylon, China, and the Philippines.

RECOMMENDATIONS TO MEMBER GOVERNMENTS

The Commission, having considered certain other problems upon which action might be taken by governments in rice-producing countries, agreed that

CHAPTER III

RICE DISTRIBUTION AND UTILIZATION

THE Commission recognizing that better nutrition is the end toward which all production efforts are directed that the loss of food and food values between the producer and the ultimate consumer is a basic cause of the world's food deficiencies and malnutrition and that improvements in distribution and utilization have not kept pace with advances in production agreed that action should be taken along the following lines during 1949-50 as a means of minimizing some of these problems

MARKETING AND CONSERVATION OF SUPPLIES

Standardization of Grades and Qualities of Rice

The Commission agrees that a compilation of terminology of the commercial grading of rice commonly used in member countries would be helpful in the international distribution of rice. It is recommended that member governments should each submit a descriptive glossary of terminology used in rice grading to the Executive Secretary for compilation and for circulation to member governments

Storage of Rice

Following the recommendation of the National Rice Conservation Campaign made at the Baguio Meeting recognizing the importance of the problems concerned with rice storage and noting the progress made by some member countries in reducing losses from insect and rodent infestation the Commission recommends that information on the storage methods that proved successful in minimizing losses and conserving quality of rice should be collected and made available by the Secretariat to all member governments

Rice Milling Practices

Undermilling The Commission agrees that the use of undermilled rice should be encouraged according to the recommendations of the Trivan-

Sum and Bureau Meetings In some member countries government regulations permit only the production of undermilled rice. The Commission notes that at present certain technical difficulties exist in the production and storage of this type of rice. It is urged, however, that each member government should actively take necessary steps conducive to the use of under-milled rice.

Exhibition of Rice Milling and Processing Equipment Collaborative studies by engineers and nutrition workers to improve the design of rice mills are important. As a step in promoting such studies the Executive Secretary is requested to look into the possibility of inviting the manufacturers of various types of milling and processing equipment from different parts of the world to organize an exhibition of their products at the next meeting of the International Rice Commission.

Utilization of Rice By-products

The Commission realizes the desirability and possibility of utilizing the by-products of the rice plant such as rice straw, husk and bran for the manufacture of valuable industrial and food items. Such a practice will not only contribute greatly to the economy of the rice-producing countries but will also tend to improve the social and economic condition of rice farmers. Adequate measures should be taken by the Secretariat of the Commission to obtain all information available on the utilization of rice by-products and to place it at the disposal of member governments.

Rice Marketing and Cooperatives

Recognizing the importance of efficient methods of distribution it is recommended that further study be made by governments as to the best way of adopting co-operative principles in the marketing of products and purchasing of supplies by rural people.

Transport Equipment and Storage Material

In view of the difficulties encountered by rice-producing countries in South East Asia owing to the inadequacy of railway and other transport equipment and of materials for providing storage facilities the Commission recommends that FAO seek the cooperation of all governments and other International Organizations to make such equipment and material available immediately.

NUTRITIONAL ASPECTS

The following recommendations covering the nutritional aspects of the rice problem were adopted by the Commission (*see Appendix E - Report of the Nutrition Subcommittee*)

Definition of Properly Milled Rice

There is need to arrive at an international definition of properly milled rice from the point of view of nutrition by determining the optimum degree of removal of certain parts of the grain. It is recommended that further studies on the distribution of the nutrients in the various structure of the grain should be encouraged.

Parboiling

The Commission believes that the problem of parboiling should receive the most urgent attention from all authorities concerned and recommends that more study should be conducted as soon as possible on the various phases of the problem in the light of the following facts:

- 1 In the past objections raised against the use of parboiled rice generally referred to unsuitably prepared products. It is now possible to obtain products of a much better quality by improved methods.
- 2 Parboiling makes it possible to produce from a given amount of paddy more rice with less breakage in milling, to use a lower grade of paddy to obtain a rice with superior keeping qualities and to retain more of the nutrients of the grain during milling, washing and cooking. As a consequence the adoption of parboiling would result in large savings of rice and even more important of valuable vitamins and minerals.
- 3 The acceptability and digestibility of suitably prepared parboiled rice have not been sufficiently tested among populations accustomed to other types of rice.

Nutrition Research Fund

The Commission fears that the various priorities facing all governments would seriously delay the undertaking of urgently needed rice research.

It recommends that FAO explore the possibility of securing special funds for nutrition research on rice and also that it ask each member

government to assist in such research by contributing funds or by undertaking programs of work. The Director-General should be asked to ascertain the nature and/or scale of contribution of individual countries.

Incidence of Disease and Malnutrition

The Commission has taken into consideration the serious incidence of malaria and malnutrition in rice-producing countries and wishes to support the conclusion of the nutrition experts on this problem as indicated in *Annex L*.

Nutrition Surveys and Education

The Commission, recognizing the urgent need for more recent data on the nutritional status of the rice-eating and rice-producing populations recommends that member governments conduct nutritional surveys as soon as possible in order to report on the results to the forthcoming meeting of the Nutrition Committee.

It fully realizes that there is an acute shortage of trained personnel available in nutrition work in most of the member countries and recommends that an adequate training program be undertaken. As most member countries are not in a position to implement such a recommendation fully at present the training of nutrition workers should be arranged under the auspices of the Commission. An adequate pool of personnel is necessary as the first essential to any advance in research work -- nutritional survey or otherwise.

CHAPTER IV

RICE STATISTICS AND TERMINOLOGY

THE foundation for improvement of rice statistics was laid in the recommendations of the Rice Study Group, the Singapore Statistical Conference, and the Baguio Rice Meeting. These recommendations therefore are accepted as the basis of the Commission's Statistics Program and have the general support of all participating members. But the immediate task ahead is to translate these recommendations into action and especially to focus attention and initiate work on those phases of the problem that are susceptible to early solution. This has been the guiding principle in adopting the following program and recommendations.

STANDARD STATISTICAL PRACTICES

As initial steps in the development of a Rice Statistical Code, the Commission hereby agrees that the standard statistical practices outlined below will be adopted in reporting and publishing rice statistics for international use, and it urges their acceptance by the FAO and each member government.

Use of the Metric System

All rice statistics published or released by the Commission and FAO for international use and those reported by governments for this purpose will be expressed in the metric system in particular metric tons, kilograms, and hectares as standard units. Use of the term "quintal" in international statistics is not recommended.

Standard Rice Year

A standard rice year will be adopted for statistical purposes, as determined by FAO after examination of planting and harvest periods for rice and consideration of similar reporting periods for related crops.

Statistical Rice Equivalents

International statistics relating to production will be expressed in terms of "paddy" equivalents, and statistics of trade and consumption will be expressed as "milled rice" equivalents except for by-products,

Statistics of Rice Areas

- 1 Areas under double or triple rice-cropping, will be counted two or three times in reporting the yearly totals of cultivated rice lands and when possible the amount of this multiple cropped area will be indicated in a footnote
- 2 Statistics of cultivated rice lands will indicate whether the area of the lands is included or excluded and if included an estimate of the proportion of the area will be reported when possible
- 3 Statistics of rice area will be reported in terms of both the sown and the harvested area whenever possible but if only one can be reported the sown area is preferred. In either event the footnote will indicate which basis is used

Rice Terminology

The term and definition listed in *Appendix B* will be used in the Commission's publications and statistics. FAO is requested to supplement this table with a list of comparable local terms and definitions for each country.

RECOMMENDATIONS TO MEMBERS AND FAO

The Commission recommends that the following measures be taken by member governments with a view to improving their primary rice statistics:

Standard Conversion Rates

All governments are urged to re-examine the standard conversion rates of paddy to rice and rice products when used in their respective countries for statistical purposes and to establish if needed a new set of conversion rates more applicable to current conditions. FAO is requested (a) to make enquiry of governments concerning any new rates that may be established including information on the analytical and technical basis for such established rates and (b) to offer to assist members in or through studies of actual output under existing milling and home-pounding practices.

Manual of Rice Conversion Factors and Related Information

FAO is requested to compile and publish a handbook of equivalents and conversion factors covering the most common system of weights measures,

- and conversion units applicable to rice production and trade in each of the countries concerned and to include a summary of these conversion factors in its principal statistical publications

Rice Balance Sheet

It is recommended that a standardized form of rice balance sheet be utilized by all governments in estimating production and supplies consumption and exports and that these balance sheets be drawn up in accordance with the method outlined in *Appendix G*

Forward Estimates of Rice Production Consumption and Trade

FAO is requested to revise and publish up-to-date estimates of consumption production, trade and supplies of rice such as given in *Appendix B* of the *Report of the Baguio Rice Meeting*

The 1950 Census Program

Since the 1950 census will provide a much needed foundation for the extension and improvement of rice statistics the Commission gives its full support to this program and recommends that

- 1 FAO invite governments of all rice-producing countries to submit not later than 30 June 1949 additions to the list of items proposed for inclusion in the 1950 census schedule and that the information received be disseminated to all governments
- 2 Countries that adopt the minimum list of census items (Part A of the Census Program) add under II 7 Arable Land the necessary subcategories to indicate the areas suitable for major crops particularly rice
- 3 The following footnotes be added under IV Crops
For shifting cultivation especially under rice cultivation the same as under such cultivation should be estimated
In countries where sample checking field by field or farm by farm by teams of skilled enumerators is contemplated the determination of the proportion of the lands usually included in area figures to the total areas of rice fields should be made
- 4 Pilot tests if possible be carried out by countries during the second half of 1949 in order to check the practical value of the forms and of the methods which are being elaborated and the information so collected be communicated by FAO as early as possible to all countries concerned

- 5 The Commission expresses its hope that, if at all possible, the 1950 census will be taken by governments in that year, but recognizes that in certain rice-producing countries it may be advisable in view of unsettled conditions to defer temporarily the taking of a complete census so that the results will be of maximum usefulness. However, the Commission urges that all governments make the necessary financial administrative and technical preparations now so that the success of the world census program will be assured whenever it is carried out.

Review of Action Taken

Prior to the next and subsequent sessions of the Commission, governments will be requested to report through the Executive Secretary the steps taken and the progress made in adopting the Standard Practices recommended above and in implementing the other proposals contained in this Chapter. A summary of this information will be presented by the Executive Secretary to the next and subsequent regular sessions.

Members are requested to send their first report to the Executive Secretary *not later than 1 January 1950*.

ESTABLISHMENT OF STATISTICAL ADVISORY AND RESEARCH UNIT

Functions

The Commission, having ascertained that its member governments have a genuine interest in improving their rice statistics, is of the opinion that this can be accomplished most effectively through the systematic interchange of information and advice with the help of FAO. It therefore urges that FAO establish in their regional offices a Statistical Advisory and Research Unit which can aid in methodological research and provide assistance to the governments and to the Commission such as

1. Direct help to governments upon request in analyzing the deficiencies in their rice statistics systems and in determining what improvements can be made.
2. Organization of, and assistance to training centers in statistics and censuses to serve the rice-producing countries.
3. Assistance to the Commission and its statistics committees or working groups in the planning and initiation of studies to clarify questions of statistical method, coverage, definitions, and interpretation and in the provision of general statistics advisory services.

- 4 Assistance in the development of improved definition of grades and standards of rice with appropriate consultations with international agencies and the rice trade in this matter
- 5 Dissemination of available information relating to successful practices being used in the collection compilation tabulation and analysis of agricultural statistics

Activities of Statistical Unit During 1949--50

The Commission recommends further that these Statistical Advisory and Research Units concentrate upon the following projects during the next year or two all of which are sponsored by the Commission and upon which full collaboration can be expected from members of this Commission

- 1 Systematic analysis of current methods and deficiencies in crop estimating and reporting systems with a view to improving rice statistics and extending as rapidly as feasible the scope of statistical estimates and publications to cover a wider range of items especially those concerning utilization of supplies tiller millin tools on hand farm and market prices rations and losses during various stages of marketing and utilization In the analysis of current methods of determining estimating or checking the area condition yield and production of paddy consideration should be given to procedures for making objective tests of such estimates e.g. crop-cutting experiments sampling visual judgment use of air photographs etc
- 2 Compilation of crop calendar and a timetable of statistical reports relating to rice showing the times when various reports are scheduled for release by governments
- 3 Development of a schedule of data to be furnished by member countries on normal requirements of seed and animal feed
- 4 Since the improvement of statistics is closely associated with the day-to-day process of assembling and reporting statistics the Commission urges FAO to consider the feasibility of making the regional Statistical Advisory and Research Units responsible for the assembly of at least part of the primary rice statistics from governments in the region and for their summarization and transmittal to headquarters

CHAPTER V

GENERAL AND FINANCIAL MATTERS

THE Commission considered certain other matters having an important bearing on all the technical fields discussed above and took the following action.

Newsletter and Library

- 1 As soon as feasible the commission desires to establish a film library to which each government will contribute one copy of each educational strip and movie film that is prepared on subjects relating to rice production distribution and utilization. Such films will be available on a loan basis to all members.
- 2 The Executive Secretary is requested to issue newsletters at appropriate intervals summarizing recent important developments relating to rice production and utilization. For use in preparing these newsletters member countries will submit material to FAO quarterly by the following dates: January 1 April 1 July 1 October 1

Personnel and Budget

- 1 The Commission recognizes that the existing FAO staff assigned to work on matters of concern to the Commission while adequate to handle most of the work proposed for 1949 may not be large enough to handle promptly some kinds of projects. It also recognizes that the problem of technical personnel may become more acute as the Commission's program of work develops. It therefore requests that:
The Director-General provide, within limits of existing funds sufficient personnel to carry out the technical projects proposed and particularly that provision be made in 1949 for adequate personnel to handle the work proposed on fertilizers.
- 2 The Director-General is requested to include in the 1950 Budget Request of FAO sufficient funds to carry forward the work of the Commission taking into account recommendation 1 above and the program outlined in preceding sections of this report.

Implementation of the Program by Governments

Because of the dislocation of production as a result of the last war, shortage of food is still causing hardship and misery among the people in many countries. The Rice Commission has been established primarily for the purpose of solving as expeditiously as possible the problems of production and distribution of rice supply. To attain this objective, all member nations must work co-operatively and in consultation with one another. National FAO Committees can be of great help to Governments and to the Rice Commission by following up and implementing the policies and recommendations adopted in the Commission's meetings. For this reason, all member nations are urged to use their FAO Committees whenever possible on Rice Commission affairs. Where active National FAO Committees do not exist, governments are urged to assign personnel and where possible, to organize a separate office exclusively for the promotion and co-ordination of the work of the Rice Commission and related FAO matters.

Rules of Procedure

The Commission, after detailed consideration of the draft submitted by the Director-General of FAO, formulated and adopted the Rules of Procedure contained in *Appendix B*.

Next Session of the Commission

The Commission unanimously accepted the invitation of the government of Burma to hold the 1950 session in that country at some convenient time between mid-January and mid-February, 1950.

It is recommended that, if feasible, the next meeting of the regional Nutrition Committee for Asia and the Far East be held immediately prior to the Commission's session and at the same place.

The agenda shall contain the items provided for in Rule IV of the Rules of Procedure, plus the following:

- 1 Establishment of an Agenda Committee
- 2 Examination of the factual reports on various aspects of production and consideration of ways of implementing the actions suggested therein, especially
 - a Survey of standard varieties,
 - b Seed disinfection as a means of reducing seed-borne diseases,
 - c Seed treatment with chemicals to increase yields
 - d Mechanization of rice culture,
 - e Development in the control of stem borers

- f. Conditions of production affecting rice yields,
 - g. Fertilizer practices,
 - h. Crop rotations
 - i. Use of pumps in irrigation,
 - j. Availability of draft animals for export
- 3. Reports by working parties and governments on actions taken to implement the recommendations on production, distribution, utilization, statistics and terminology
- 4. Statistical advisory services for the design and analysis of rice experiments
- 5. Other topics which members may suggest to the Executive Secretary during the year

APPENDIX A

CONSTITUTION OF INTERNATIONAL RICE COMMISSION

PREAMBLE

The Council of the Food and Agriculture Organization of the United Nations, having regard to the deliberations of the Rice Study Group which met at Triavandium of the Third Session of the Conference of the Organization, and of the International Rice Meeting held at Baguio and with a view to co operative action in matters relating to the production conservation distribution, and consumption of rice (excepting matters relating to international trade) hereby establishes an International Rice Commission in accordance with the following Constitution

ARTICLE I THE COMMISSION

There shall be a Commission known as the International Rice Commission, with the functions set forth in Article IV of this Constitution

ARTICLE II MEMBERSHIP

The members of the Commission shall be such of the governments, members of the Food and Agriculture Organization of the United Nations, as may accept this Constitution in accordance with the provisions of Article VII hereof

ARTICLE III ORGANIZATION

1 Each government that becomes a member of the Commission as defined in Article II hereof (hereinafter called a "member government") shall have the right to be represented at meetings of the Commission by a single delegate who may be accompanied by an alternate and by experts and advisers. Alternates, experts, and advisers shall be entitled to take part in the proceedings of the Commission but not to vote, except in the case of an alternate who is duly authorized to act for a delegate

2 Each member government shall have one vote. Decisions of the Commission shall be taken by a simple majority of votes cast except as otherwise provided by this Constitution. A majority of the members of the Commission shall constitute a quorum.

3 The Commission shall elect a Chairman from among the delegates who shall serve for a period of one year without prejudice to the right of re-election.

4 Subject to the provisions of paragraphs 2 and 5 of this Article the Commission shall with the concurrence of the Director General of the Food and Agriculture Organization establish its own rules of procedure and determine the mode of its meeting.

5 The Chairman shall call a meeting of the Commission at least once a year unless otherwise directed by a majority of member governments. The initial meeting shall be called by the Director General of the Food and Agriculture Organization within six months after the entry into force of this Constitution and at such place as he may designate.

6 Any member government shall have the right with the concurrence of the Director General of the Food and Agriculture Organization to call for a special meeting of the Commission.

7 The seat of the Commission shall be the same place as the seat of the Far Eastern regional office of the Food and Agriculture Organization.

8 The Director-General of the Food and Agriculture Organization shall appoint a Secretary to the Commission and shall provide its secretariat from the staff of the Far Eastern regional office.

ARTICLE IV FUNCTIONS

The Commission shall except in matters relating to international trade have the functions of

- (a) formulating and keeping under review the scientific, technical and economic problems involved in the production, conservation, distribution and consumption of rice;
- (b) promoting and co-ordinating research into those problems and its application to the development and adoption of improved methods in everyday practice;
- (c) encouraging and assisting the mobilization and use of scientifically and technically trained persons in such a way as to secure the greatest common benefit to member countries in matters relating to the production, conservation, distribution and consumption of rice,

- (d) undertaking, where necessary and appropriate co-operative projects directed to the solution of the above-mentioned problems ,
- (e) assembling, collating, and disseminating, through the publications of the Food and Agriculture Organization and otherwise information relating to the production conservation distribution and consumption of rice ,
- (f) establishing such committees and calling such meetings of experts as the Commission may consider desirable for the performance of the foregoing functions
- (g) recommending to member governments, through the Food and Agriculture Organization such national and international action as may appear to the Commission to be necessary or desirable for the solution of the above-mentioned problems
- (h) recommending to the Food and Agriculture Organization the provision of technical assistance to member governments in measures directed to that end
- (i) extending its good offices in assisting member governments to secure materials and equipment necessary for improvement of the production, conservation, distribution or consumption of rice
- (j) reporting annually on its activities to the Council of the Food and Agriculture Organization and making such other reports to the Food and Agriculture Organization on matters relating to the production conservation distribution, and consumption of rice as the Commission itself may consider expedient or the Council of the Food and Agriculture Organization may require

ARTICLE V

CO-OPERATION WITH INTERNATIONAL ORGANIZATIONS

The Commission shall maintain, through the Food and Agriculture Organization close liaison with the United Nations and its specialized agencies in matters of mutual interest

ARTICLE VI EXPENSES

1 Expenses incurred by delegates and their alternates, experts and advisers in attending meetings of the Commission and expenses incurred by experts under paragraph (f) of Article IV hereof shall be determined and paid by their respective governments

2 The expenses of the secretariat of the Commission and any expenses incurred by the chairman of the Commission in performing duties connected with its work in intervals between meetings of the Commission shall be determined and paid by the Food and Agriculture Organization within the limits of an annual budget prepared and approved in accordance with the Rules of Procedure and Financial Regulations of that Organization for the time being in force

3 Expenses incurred by the Commission in undertaking any co-operative project in accordance with paragraph (d) of Article IV hereof shall, unless they are met by the Food and Agriculture Organization or from any other source, be determined and paid by member governments in such manner and proportions as they may mutually agree

ARTICLE VII ACCEPTANCE AND WITHDRAWAL

1 Acceptance of this Constitution by any member government of the Food and Agriculture Organization shall be effected by the deposit of a notification of acceptance with the Director-General of the Organization and shall take effect on receipt of such notification by the Director-General, who shall forthwith inform each of the member governments of the Organization

2 Any member government may withdraw from the Commission at any time after the expiration of one year from the date on which its acceptance takes effect or this Constitution comes into force whichever is the later, by giving written notice of such withdrawal to the Director-General of the Food and Agriculture Organization who shall forthwith inform all member governments of the Commission Any such notice of withdrawal shall become effective six months after the date of its receipt by the Director-General

ARTICLE VIII AMENDMENTS

This Constitution may be amended by the vote of a two-thirds majority of all the members of the Commission with the concurrence of the Council of the Food and Agriculture Organization

ARTICLE IX ENTRY INTO FORCE

This Constitution shall enter into force as soon as notifications of acceptance have been received from the governments of at least ten countries members of the Food and Agriculture Organization representing in the aggregate not less than half of the world production of rice in the crop year 1947/48 as shown by official statistics

APPENDIX B

RULES OF PROCEDURE OF THE INTERNATIONAL RICE COMMISSION

RULE I

For the purposes of these Rules the following definitions shall apply -

<i>Chairman</i>	- Chairman of the International Rice Commission
<i>Vice-Chairman</i>	- Vice-Chairman of the International Rice Commission
<i>Commission</i>	- International Rice Commission
<i>Conference</i>	- Conference of the Food and Agriculture Organization of the United Nations
<i>Constitution</i>	- Constitution of the International Rice Commission
<i>Council</i>	- Council of the Food and Agriculture Organization of the United Nations
<i>Director-General</i>	- Director-General of the Food and Agriculture Organization of the United Nations
<i>Member governments</i>	- Member governments of the International Rice Commission
<i>Organization</i>	- Food and Agriculture Organization of the United Nations
<i>Regional Office</i>	- Regional office for Asia and the Far East of the Food and Agriculture Organization of the United Nations
<i>Executive Secretary</i>	- Secretary of the International Rice Commission

RULE II

SESSIONS OF THE COMMISSION

1 In pursuance of Article III, paragraph 5, the Constitution, the Chairman shall convene the Commission to meet annually in regular session unless otherwise directed by a majority of member governments. Each regular session of the Commission shall decide the date of the next regular session.

2 If any member government so requests, the Chairman shall, with the concurrence of the Director-General, convene the Commission to meet in special session within 90 days at such time and place as the Director-General may designate

3 Notices of a session of the Commission shall be issued by the Executive Secretary, not less than 50 days in advance of the date fixed for the opening of the session, to member governments and public international organizations eligible to participate

4 Any public international organization shall be entitled to participate in sessions of the Commission if it has concluded an agreement with the Organization providing for reciprocal representation. Any international non-governmental organization may be invited to participate in accordance with the regular conference provisions for such participation

5 Subject to decision of the Commission, the Director-General shall determine what other public international organizations may be invited to participate

RULE III CREDENTIALS

1 The credentials of delegates and the names of the members of their delegations and of the representatives of participating public international organizations shall, insofar as possible, be deposited with the Executive Secretary not later than the opening day of each session of the Commission

2 The Executive Secretary shall examine the credentials and report thereon to the Commission

RULE IV AGENDA

1 Proposals for the agenda of any session may be made by any member government

2 The agenda of each regular session of the Commission shall consist of all items the inclusion of which is decided upon by the Commission, all items which the Council Conference or Director-General may wish to refer to the Commission and

(a) progress reports to the Commission on its work

(b) relevant budgetary proposals and the audited accounts of the Commission

(c) the reports which the Commission intends to submit to the Council in accordance with the requirements of Article IV (j) of the Constitution and

(1) proposals for amendments to the Constitution if any in accordance with Rule XVII

3 The agenda of a special session of the Commission convened in pursuance of Rule II, paragraph 2 shall be subject to approval by the Director-General

4 A provisional agenda of each session of the Commission shall be sent by the Executive Secretary to member governments and to participating public international organizations not less than 50 days before the date fixed for the opening of the session except as provided in Rule XVII paragraph 2

5 Copies of all reports and other documents to be submitted to the Commission at any session in connection with any item on the agenda shall be sent to member governments and to participating public international organizations at the same time as the agenda for the session or as soon as possible thereafter

6 The Commission shall not proceed to the discussion of any item not contained in the provisional agenda until at least 48 hours have elapsed from the time it is added to the agenda

RULE V SECRETARIAT

1 The Secretariat of the Commission shall consist of the Executive Secretary and those members of the staff of the Organization provided by the Director-General in pursuance of Article III paragraph 8 of the Constitution

2 It shall be the duty of the Secretariat to receive and circulate documents reports and resolutions of the Commission and of its committees to prepare the records of their proceedings to certify expenditures and financial commitments and to perform such other work as is required of it by these Rules or by the Commission or any of its committees

3 Copies of all correspondence concerning the Commission addressed to the Director-General by member governments and participating public international organizations shall be sent to the Executive Secretary at the regional office

RULE VI PLENARY MEETINGS OF THE COMMISSION

1 Plenary meetings of the Commission shall be held in public unless the Commission decides otherwise Subject to any decision of the Commission

the Executive Secretary shall make arrangements for the admission of the public and of representatives of the press and other information agencies to plenary meetings of the Commission

RULE VII WORKING LANGUAGES

English and French shall be the working languages of the Commission.

RULE VIII ELECTION OF CHAIRMAN AND VICE-CHAIRMEN

1 The Chairman or Acting Chairman shall at each regular session call for nominations from the floor for the offices of Chairman and First and Second Vice-Chairmen of the Commission for the ensuing year. Nominees must be delegates to the Commission, and be duly proposed and seconded. The Commission shall then elect the Chairman and Vice-Chairmen from the nominees.

2. The elected Chairman and Vice-Chairman shall hold office from the time of their election to the time when their successors are elected at the next regular session. They shall be eligible for re-election.

RULE IX POWERS AND DUTIES OF THE CHAIRMAN AND VICE-CHAIRMEN

1 In addition to exercising such powers as are conferred upon him elsewhere by these Rules, the Chairman shall declare the opening and closing of each plenary meeting of each session of the Commission. He shall direct the discussions in the plenary meetings and at such meetings ensure observance of these Rules, accord the right to speak, put questions and announce decisions. He shall rule on points of order and, subject to these Rules, shall have complete control over the proceedings at any meeting. He shall arrange for the organization of such committees as are to be established, observe their progress and help coordinate their efforts. When requested by the Director-General or the Council, he shall represent the Commission at meetings of other international bodies, and undertake other specified activities to help promote the objects of the Commission.

2 In the absence of the Chairman during a plenary meeting or any part thereof, one of the Vice-Chairmen shall preside. A Vice-Chairman acting as Chairman shall have the same powers and duties as the Chairman.

3 The Chairman or a Vice-Chairman acting as Chairman shall not vote but may appoint another member of his delegation to act as the representative of his government in the Commission.

4 If for any reason the Chairman is unable to continue in office, his place shall be taken by the First Vice-Chairman pending the election of a new Chairman at the next regular session. Similarly, should the First Vice-Chairman be unable to continue to act as Chairman, his place shall be taken by the Second Vice-Chairman

RULE X QUORUM AND VOTING ARRANGEMENTS

1. Only member governments shall have the right to vote
2. The presence of delegates representing a simple majority of the members of the Commission shall constitute a quorum
3. Except as provided in paragraph 6 of this Rule, voting in plenary meetings shall be oral or by show of hands provided that a vote by roll call shall be taken if a special majority is required by the Constitution, or these Rules, or if a request for a vote by roll call is made by any delegate.
4. Voting by roll call shall be conducted by calling upon delegates in the alphabetical order in English of the member governments which they represent
5. The vote of each delegate participating in any roll call vote, and any abstentions, shall be inserted in the record of the meeting
6. Voting on decisions relating to individuals shall be by secret ballot
7. When no nominee for an office obtains in the first ballot a simple majority of the votes of members present and voting, a second ballot shall be taken confined to the two candidates obtaining the largest number of votes. If, on the second ballot, the votes are equally divided, the Chairman shall decide between the candidates by drawing lots
8. If the Commission is equally divided when a vote is taken on a question other than an election, a second vote shall be taken at the next meeting of the current session. If the Commission is then again equally divided, the proposal shall be regarded as rejected

RULE XI COMMITTEES OF THE COMMISSION

1. The Commission may appoint, or authorize the appointment of, any temporary, special, or standing committee which it deems necessary.
2. The Chairman of each committee shall decide whether sufficient members are present to constitute a quorum
3. Committees shall meet in private unless their terms of reference specify otherwise

4 Except as otherwise provided in this Rule, the Rules of Procedure of the Commission shall apply so far as practicable to its committees

RULE XII

PARTICIPATING PUBLIC INTERNATIONAL ORGANIZATIONS

1 Unless the Commission expressly determines otherwise, the representatives of participating public international organizations may take part in the discussions and work of the Commission and its committees

RULE XIII

RECORD OF PROCEEDINGS

1 Summary records shall be made of all plenary meetings and meetings of committees, and shall be circulated as soon as possible to members of delegations who participated in the meeting concerned

2 All official press communiques reporting sessions and work of the Commission shall be approved and issued by the Executive Secretary, subject to any instructions of the Commission

3 The Organization shall communicate to all its members, to the United Nations and its Specialized Agencies, and to any other participating public international organizations as soon as possible after the end of each session, a report embodying the text of all resolutions, recommendations, and other formal decisions adopted by the Commission including when requested by them a statement of minority views

RULE XIV FINANCE

1 Except as may be otherwise provided in these Rules, the Financial Regulations of the Organization as implemented by the Administrative Manual and Memoranda and the procedures laid thereon shall apply to the activities of the Commission

2 Each financial year the Commission shall prepare estimates of funds required as related to its proposed activities for the ensuing year. Such estimates shall be submitted to the Director-General for consideration in the preparation of the general budget estimates of the Organization

3 When adopted by the Conference as a part of the general budget of the Organization, the budget of the Commission shall constitute the limits within which officials designated by the Director-General may commit funds for purposes approved by the Conference

4 The Executive Secretary shall submit monthly on the appropriate forms

the to Director-General through the Regional office, statements accompanied by the appropriate vouchers, setting out the expenditure effected and commitments incurred

5 The examination and audit of the accounts of the Commission shall be conducted at the headquarters of the Organization. Any comments arising therefrom will be communicated to the Commission through the Regional office.

6 Any funds contributed by member governments for cooperative projects under the terms of Article VI, paragraph 3 of the Constitution shall be administered by the Organization in accordance with its established procedures for the administration of such funds and with any agreements made with contributing member governments.

RULE XV RELATIONSHIP WITH THE ORGANIZATION

1 The Chairman shall maintain close touch with the Regional office and shall, in consultation with the Regional Representative of the Director-General, devise means to secure integration of the activities of the Commission with those of the Organization.

2 The Director-General may at any time report or comment to the Commission on any aspect of its activities.

RULE XVI LIAISON WITH INTERNATIONAL ORGANIZATIONS

The liaison with other international organizations enjoined on the Commission by Article V of the Constitution shall take such form and be maintained through such channels as may from time to time be used for the purpose of liaison between the Organization and such bodies.

RULE XVII AMENDMENT OF THE CONSTITUTION

1 Proposals for the Amendment of the Constitution under Article VIII of the Constitution may be made by any member government in a communication addressed to both the Chairman and the Director-General. The Director-General shall immediately inform all member governments of all proposals for amendments.

2 No proposal for the amendment of the Constitution shall be included in the agenda of any session unless notice thereof has been sent by the Director-General to member governments at least 90 days before the opening of the session.

RULE XVIII
SUSPENSION AND AMENDMENT OF RULES

1. Subject to the provisions of the Constitution, any of the foregoing Rules other than Rule II, paragraphs 2, 4 and 5, Rule IV, paragraph 3, Rules V, XIV, XV, XVI, and XVII may be suspended by a two-thirds majority of the votes cast at any plenary meeting of the Commission, provided that notice of the intention to propose the suspension has been communicated to the delegates not less than 24 hours before the meeting at which the proposal is to be made.

2. Amendments of, or additions to, these Rules may be adopted by a two-thirds majority of the votes cast at any plenary meeting of the Commission, provided that the intention to propose the amendment or addition has been communicated to the delegates not less than 24 hours before the meeting at which the proposal is to be considered.

3. Any amendment to Rule XVII which may be adopted in accordance with the provisions of paragraph 2 of this Rule shall not become effective until the next session of the Commission.

APPENDIX C

FORM FOR REPORTING STANDARD VARIETIES OF RICE IN COMMERCIAL USE

(Please use one form for each variety)

Country

Address from which seed is available

Latitude of supplying station

Altitude of supplying station

Name of variety and number

Indicate whether variety belongs to Japonica , or Indica

Origin of variety

Pure Line/hybrid

Glutinous / Non - glutinous

Awns - Absent / Tip only / Long

Kernel pericarp - Red / White

Life period at supplying station

days

Normal sowing time

Rainfall during growing period

Approximate mean temperature during growing period

Maximum

Minimum

{ Upland (without bunds to fields
and without irrigation)
Lowland (bunded fields)
Floating

..

Normally broadcast/transplanted

Grain (paddy) Length	mm
Breadth	mm
Thickness	mm
1000 gram weight	gm
Shedding / non-shedding	
Straw height	cm
lodging / non-lodging	
Tillering Good / Medium / Bad	
Approximate Yield of paddy at supplying station	kgm per hectare lbs per acre
Normally parboiled / not parboiled	
Milling out turn	per centum whole rice
Rice - Translucent / Opaque	
Rice - Specific gravity (density)	

Special Characteristics

- Disease resistance
- Insect pest resistance
- Saline tolerance
- Drought Resistance
- Presence of anthocyanin pigment
and in what parts
- Flood tolerance
- Any other special characteristics

NB

- (1) Please do not delay this return if all the data are not immediately available. Please give what information you can.
- (2) When asking for seed please do not ask for large quantities (100 gm or 4 oz limit) and state any special disinfestation or other certificates required by your country.
- (3) Please give data in metric system.
- (4) Please report all standard varieties i.e. all varieties maintained pure and recommended to the farmers of your country for growing. You may report any others which you think may be of special interest to plant breeders.

APPENDIX D

SCHEDULE OF BASIC INFORMATION REQUIRED FOR EACH RICE PRODUCING AREA

General characteristics

- 1 Approximate rice area in the country region or province (See foot note next page)
- 2 Altitude
- 3 Latitude
- 4 Rice season part of the year and its duration
- 5 Average temperature during the rice growing season
- 6 Average rainfall during the rice growing season—distribution
- 7 Soils (a) Rough description—Sandy loam loam clays heavy clays etc
(b) Ph status of the soil maximum and minimum if known or simply acidic or neutral or alkaline
- 8 General cultural practices
- 9 Average yield of grain per unit per acre in the region or tract
- 10 Main problem of the region or tract with relation to increasing production
- 11 Improvements available and the percentage increase in yield which such improvements have already brought about or are capable of producing

Crop characteristics

- 1 Upland rice or lowland rice and the life period of the crop generally at what
- 2 Variety most common non-glutinous or glutinous
- 3 If lowland rice completely rain fed partly irrigated or mainly irrigated
If irrigated the amount of water required by the crop in acre inches
- 4 Directly sown or transplanted
- 5 Practice of double cropping if any
- 6 Rotations with other crops if any
- 7 Common fertilizer for manuring practices and the amounts

Economic Factors

- 1 Size of holdings and type of tenancy most prevalent

- 2 What are the credit facilities available to the rice growers
- 3 What is the arrangement existing for supply of good seed to the growers
- 4 What are the facilities available for the growers to obtain adequate quantities of fertilizers and manures
- 5 The extension practices which have proved most successful

NOTES

Where a country has its rice area distributed over different ecological regions or tracts information required may be given separately for each of the regions

If there are any special conditions not covered by this questionnaire which are responsible for the present low or high average yields per acre they may please be mentioned

Data should be given in the metric system or in the system of the country with metric equivalents

APPENDIX E

REPORT OF THE SUBCOMMITTEE ON NUTRITION

1. The chief function of this sub-committee is to inform and advise Committee B on the nutritional aspects of rice distribution and utilization
2. The sub-committee will also review some of the problems listed in Document IRC 49/3, Section III, and submit them to the International Rice Commission for early action
3. Various technical nutrition problems will be referred to the Nutrition Committee for Asia and the Far East for consideration as recommended in the Baguio Nutrition Meeting
4. In Document IRC 49/3, Section III, (1), *Rice Breeding*, specific mention is made of "breeding for higher nutritive value." The subcommittee suggests that the Committee on Rice Production (Committee A) should be reminded of the importance of carrying out the chemical analysis of rice in connection with studies on improved varieties. It is essential not only to obtain higher yields but also to produce rice of high nutritive value and good milling qualities
5. The subcommittee feels that an international definition of properly milled rice from the point of view of nutrition is needed. The Baguio Nutrition Meeting adopted a minimum standard of 15 micrograms of thiamine (Vitamin B₁) per gram of rice. For the use of the milling technicians, it may be possible to define the best kind of milled rice by determining the maximum degree of removal of certain parts of the rice grain, such as the aleurone layer and the embryo. Therefore, further anatomical and chemical research on the distribution of the nutrients in the various parts of the rice grain—as has been done for other cereals—should be encouraged
6. The preservation or restoration of nutritive values during the process of transforming paddy to the edible form of rice can be achieved along different lines:
 - a. By improving the present milling practice to produce the properly milled rice referred to in paragraph 5.

b By parboiling, leading to a product which retains a much larger quantity of nutrients than ordinary milled rice and is much less susceptible to the loss of nutrients by washing and cooking

c By enrichment or reinforcement with vitamins and minerals

- 7 Improvement of milling practices requires more accurate knowledge regarding the distribution of the principal nutrients in the rice grain and the practical possibility of preserving during the milling process a sufficiently large proportion of the richest parts of the grain

Countries which have already undertaken or are willing to undertake studies on this subject under the following headings are requested to report to the Executive Secretary of the International Rice Commission and to make the results already obtained available to workers of other countries

- a Chemistry of the grain of rice with special reference to the distribution of nutrients
- b Technology of the milling process, with the same special reference

The matter is to be submitted to the Nutrition Committee for Asia and the Far East

- 8 The process of parboiling as described on page 17 of *Rice and Rice Diets*¹ may result in a product which is slightly yellow before cooking but which is white when cooked and does not differ markedly in taste from the ordinary rice. It has a tougher texture and will not turn pasty after prolonged cooking. An expert from Indo-China has informed the sub-committee that such results can be achieved by the following techniques: cleaning by blowing and washing; soaking at 25-30° C for one day; changing water several times during soaking; steaming in autoclave at 120° C for 15 minutes; drying by a counter-current stream of hot air

- 9 Improvement of this parboiling technique is desirable and is possible by simple modification of the methods now in vogue in South and East

Asia. The following are some of the suggestions

a Careful cleaning of paddy is necessary

b The following precautions should be taken in soaking

(1) Water must be changed as many times as necessary

(2) temperature should not be too high but a certain degree of heat is recommended to shorten the soaking time to about 12 hours. This will prevent fermentation

- c Heating by livestock for 30 minutes atmospheric pressure seems to produce less coloration of the grain
- d Drying at too high temperatures should be avoided to prevent coloration of the grain

10 A brief review of the economic aspects of parboiling has been made by the subcommittee. This is to be submitted to the consideration of economic experts. The advantages of parboiling are summarized as follows:

- a Production of more rice suitable for human consumption from the same amount of paddy than by ordinary milling methods (from normal grade paddy 70 percent as against 66 percent by ordinary milling, from low-grade paddy, 70 percent as against 50 percent by ordinary milling)
- b Less breakage in milling
- c Possibility of using lower-grade paddy.
- d Better storage and keeping qualities and higher resistance to insect and fungi infestation

The disadvantages may be listed as follows:

- a Need of capital investment for the parboiling plant
- b Cost of operating the plant

11 The following calculations on the conservation of rice and some of its nutrients by parboiling have been submitted to the subcommittee:

- a. Assuming that the parboiling of rice results in a saving of 2 percent in the milling process alone—which is a very conservative estimate—there would be a saving of 3 million metric tons of rice annually if all the rice produced in the world were parboiled. If the reduction in storage losses due to the superior keeping quality of parboiled rice and the possibility of using lower-grade paddy are also taken into account the amount of rice saved will be greater.
- b. Calculations based on Table 14, page 62 of *Rice and Rice Diets* show that, by parboiling rice a saving of 165 metric tons of thiamine annually is possible. This is many times more than the total amount of thiamine for which there is production capacity in the world at the present moment.
- c. Since parboiled rice is also higher than ordinary milled rice in other vitamins and in protein, fat and minerals, such a step would be a major contribution towards improving the nutritional standard of rice-eating people.

- 1 The subcommittee is of the opinion that for the above reason the question of parboiling deserves the closest attention of all authorities concerned

12 Acceptability of parboiled rice

- a Some grades of parboiled rice which have a dark color and a strong smell and taste are considered unsuitable for human consumption in some countries they are however well accepted in other countries where the people are accustomed to their use
- b Consumer acceptability among populations not accustomed to parboiled rice should be reconsidered as the objections raised in the past referred usually to improperly processed products
- c Whether consumer trials of properly processed parboiled rice have been made on normal consumers in rice-eating countries is unknown to the subcommittee no records having been found on that point The subcommittee feels it necessary to call attention once more to the recommendation of the Baguio Nutrition Committee that such trials be made
- d Aware that an extensive trial of another kind of rice is being conducted in the Philippines on normal consumers in a geographically separated part of the country the subcommittee suggests that tests of acceptability of parboiled rice be conducted in isolated communities where the consumption of rice is controlled It may also be advisable to try the acceptability of parboiled rice in boarding schools or other institutions

13 Digestibility of parboiled rice

- a No data are now available on the digestibility of even ordinary rice (See *Report of Nutrition Committee Baguio* page 18)
- b In the opinion of some people parboiled rice is less digestible than ordinary milled rice but scientific investigations on this subject on different age groups of rice-eating populations should be carried out The Nutrition Division of FAO is prepared to supply data on the techniques of determining digestibility
- c Further consideration of the matter is to be referred to the Nutrition Committee

14 Enrichment

Experiments on the enrichment of rice are now being conducted in the Philippines and in Singapore but it is too early to make any definite statement on their results It can be said however that in the Philippines the

experiment has led to a drop in the mortality rate from infantile beriberi, and that in Singapore "the consumption of a small amount of enriched rice does have a beneficial influence on the health of those who eat it" (Doc IRC/49/18, page 3)

15 Nutrition Research Fund

- a The subcommittee feels that in view of the various priorities which face all governments today, the necessary research on the various aspects of nutritional studies of rice is likely to be seriously delayed. Therefore, the subcommittee would suggest that the Commission resolve that each member Government should be requested to contribute to a Nutrition Research Fund, the total amount of which would be from \$100,000 to \$200,000. The Director-General would be entrusted with the responsibility of determining the scale of contributions of individual countries. The fund would be administered by the Nutrition Division through the regional offices.
- b It is pointed out that this proposal is a practical implementation of the Baguio Nutrition Committee recommendations regarding regional activities (page 20) and program of action (Appendix A, page 22).
- c In devising the matter of procedure it is suggested that the research items to be dealt with should be put on the following priority order:
 - (i) Digestibility of rice with special reference to parboiled rice
 - (ii) Improvement of parboiling methods
 - (iii) Consumer trials on parboiled rice
 - (iv) Anatomical and chemical studies on location of nutrients in the rice grain
 - (v) Chemical composition of different varieties of rice
 - (vi) In addition, member governments could recommend the study of other problems but the Nutrition Division may review the situation and decide on the problems to be undertaken. In this connection, the Thai delegation suggests the study of the effects on rice-eaters of diets containing a large proportion of irritating condiments.

16 Incidence of disease *

- a With reference to the high incidence of disease indicated in Section II, item (2) of Doc IRC 49/8, the subcommittee has been informed by

the Director of the Division of Malaria of the Thai Ministry of Health on the problem of malaria in Thailand and the effect of this disease on rice production

- b With full appreciation of the seriousness of the situation in Thailand and in other rice-producing countries, the subcommittee strongly recommends that the Commission emphasize to WHO and UNICEF the need of immediate action for the provision of trained personnel and anti-malaria drugs and equipment to combat this disease efficiently in rice-producing areas
- c The subcommittee points out that what is true for malaria may also be true for other diseases prevalent in rice-producing areas, such as hookworm infestation, yaws etc. and similar action should be taken on these
- d The whole matter is to be referred to Committee A and to the Nutrition Committee

17 Incidence of malnutrition.

- a The subcommittee feels that nothing needs to be added to the statement made on the subject of malnutrition under Section II, item (3), of document IRC 49/3
- b Considering that malnutrition of farmers and rural workers is one of the important factors hampering the production of rice it is recommended that action be undertaken for the improvement of nutrition in rice-producing areas
- c Special attention is to be paid to the educational side of the problem.
- d The matter is to be referred to Committee A and submitted to the Nutrition Committee

18 General recommendations

- a The subcommittee requests that the Commission encourage governments to conduct a nutritional survey of the rice-eating populations immediately in order to determine their present nutritional status, and to report the results to the forthcoming meeting of the Nutrition Committee
- b With regard to the question of personnel, the subcommittee emphasizes the need of training nutrition workers. It is recommended that only a few well-qualified persons receive advanced training from abroad, many of the field workers may be advantageously trained in some training centres in Asia, where conditions would be similar to those which they will encounter in actual field work in their own country.

APPENDIX F

INTERNATIONAL RICE TERMINOLOGY

Recommended Terms	Definitions	Comments
1. Stalk Paddy ¹	Unthreshed rice in the husk, harvested with part of the stalk.	
2. Paddy	Rice in the husk after threshing.	Also called rough rice in some countries.
3 Rice ² Husked Rice	Rice from which the husk only has been removed; it still retains the bran layers and most of the germ	Commonly referred to as "brown rice" even though there are varieties having red or white bran coats. In some regions called "hulled rice" or "cargo rice."
Home-pounded Rice	Rice from which the husk, germ, and bran layers have been partially removed without use of power machinery.	Also called "hand-pounded rice."
Undermilled Rice	Rice from which the husk, germ and bran layers have been only partially removed by power machinery	Called "unpolished rice" in the United States.
Milled Rice	Rice from which the husk, germ, and bran layers have been substantially removed by power machinery.	Rice can be milled to various degrees. If milled to a high degree it is generally called "white rice."

Recommended Terms	Definitions	Comments
Coated Rice	Rice milled to a high degree and then coated with a foreign substance such as glucose or talcum.	Called "polished rice" in Europe. In the United States the term "polished rice" is used, however, for rice which has been milled to a high degree and which has gone through the brush. In Japan the same term is used for highly milled rice treated with polishing powders. The term "polished" therefore causes much confusion.
Parboiled Rice ³	Rice obtained by pounding or milling from paddy which has been steeped in water, steamed or heated and subsequently dried.	Parboiled rice may be home-pounded or milled to various degrees. Converted ⁴ and Malekised ⁵ rice is included in this category.
4 By-products Husks	By-product from the milling of rice consisting of the outermost covering of the paddy grain.	Also called 'hulls' or 'chaff' in some countries.
By-products (Cont) Bran	A by-product from the milling of rice, consisting of the outer bran layers of the kernel with part of the germ.	Also called "cargo meal" in some countries.
Rice Polishings	By-product from the milling of rice, consisting of the inner bran layers of the kernel with part of the germ and a small percentage of the starchy interior.	Also called "rice meal" or 'rice flour' in some regions. At the present time there is no appropriate term.

Definitions of Whole and Broken Grains⁴

Recommended Terms	Definitions	Comments
Whole grain Rice	Rice which does not contain broken grains smaller than three quarters of the whole grain	The term whole rice is sometimes used for husked rice but also for whole-grain rice and therefore causes much confusion
Broken Rice	Rice consisting of broken grains smaller than three-quarters of the whole grain	Various classifications of broken rice are in use by the trade
Brewers Rice	Very small broken rice	Generally used for industrial and feeding purposes

NOTES

- 1 In reporting statistics stalk paddy should be converted into terms of paddy
- 2 Unless otherwise specified these terms apply to rice in its natural state
Glutinous rice is a special botanical variety of rice which after cooking has a peculiar stickiness. It can be milled to various degrees or home pounded in the same way as ordinary rice and will then be called glutinous milled glutinous home pounded rice etc
Enriched or fortified rice is that which has been treated by adding vitamins and / or minerals to milled rice (or the rice to which such treated rice has been added) so as to improve its nutrient content
- 3 Parboiled paddy can be milled to various degrees or home pounded in the same way as ordinary paddy and will then be called parboiled milled parboiled home pounded rice etc The term raw rice is sometimes used in India to indicate that rice has not been given any heating treatment such as parboiling
- 4 Commercial grades of rice contain various proportions of whole and broken grains therefore these definitions should not be confused with grading standards

APPENDIX C

RECOMMENDED RICE BALANCE SHEET

	I Paddy	II Husked Rice	III Milled Rice Equivalent
Supply			
a) Stocks at the beginning of the year ²			
b) Production			
c) Imports			
Total			
Utilization			
d) Seed		X	X
e) Feed			
f) Industrial and other uses			
g) Exports			
h) Waste			
i) Supplies converted during the year			X
j) Human consumption	X ³	X ⁴	
k) Stocks at end of year ²			
Total			
l) Population ⁵			
m) Per capita consumption			
n) Average conversion factors used ⁵			

1 Column II is optional and may be expressed in terms of husked, home pounded or undermilled rice as is convenient for the particular country concerned

2 Where stocks figures are not available they may be eliminated from the balance sheet

3 To be multiplied by conversion rate of paddy to husked rice and the result added to II b

4 To be multiplied by conversion rate of husked to milled rice and the result added to III b

5 Optional

NOTE

It is recommended that the balance sheet be carried through three stages or at least two. In the first instance the details should be those for paddy. The balance would then be available for conversion at the appropriate extraction rate into husked or home pounded or undermilled rice.

In the second stage (which may be ignored) similar details may be prepared for husked, home pounded or undermilled rice, leaving a balance to be converted at the appropriate extraction rate into milled rice.

In the final stage the details should be in terms of milled rice which would include broken rice and brewers rice but exclude bran and other by products which would have been eliminated in the application of the extraction rate.

In this way the final balance sheet would be in terms of milled rice and therefore be in line with international trade statistics which are also in terms of milled rice.

Estimates of many of the items included in this table are liable to a wide margin of error. It is therefore suggested that the estimate of the quantity consumed internally per capita be reached by the method of sampling which is carried out sufficiently widely should produce a more accurate result or at least a convenient check. It is also suggested that all items employed in the rice balance sheet should be checked as widely as possible by the sampling method.

In due course when the component parts of the Rice Balance Sheet have been more accurately estimated by use of the sampling method a more satisfactory formula could be devised in the light of experience.

APPENDIX H

AGENDA OF THE INAUGURAL MEETING

- 1 Adoption of Rules of Procedures of the International Rice Commission and Election of Chairman and Vice-Chairmen
- 2 Formation of committees on (a) Rice Production (b) Distribution and Utilization of Rice (c) Rice Statistics and Terminology (These Committees will briefly review the relevant working papers, the recommendations of the Rice Study Group and of the Baguio Rice and Nutrition Meetings and will formulate its proposals with reference to items 3, 4 and 5 of this Agenda)
- 3 Brief review of the major obstacles to the expansion of rice production and to the better utilization of available supplies including improvement of nutrition and consideration of practical measures that can be taken to ward removing these obstacles
- 4 Examination of the steps that have been taken to improve national and international rice statistics and the formulation of a program for carrying forward this work
- 5 Determination of the specific activities to be undertaken or sponsored by the Commission including consideration of how such activities should be carried forward and how they should be integrated with similar activities of member governments and the work of the technical divisions of FAO
- 6 Consideration of the scope and nature of the Commission's first annual report to the Council of FAO in accordance with the provisions of Article IV (1) of the Constitution
- 7 Preparation of the Commission's program of activities for 1949-1950
- 8 Proposed budget of the Rice Commission for 1950
- 9 Provisional agenda and other arrangements for the next meeting of the Commission
- 10 Other business

APPENDIX I

ROSTER OF DELEGATIONS AND OBSERVERS FIRST SESSION, INTERNATIONAL RICE COMMISSION

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